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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,128	07/24/2001	Regina Schmitt	2000 P 14920 US	4047

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PATENT DEPARTMENT
1155 AVENUE OF THE AMERICAS
NEW YORK, NY 10036

EXAMINER

GROSS, KENNETH A

ART UNIT	PAPER NUMBER
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2122

DATE MAILED: 01/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/912,128

Applicant(s)

SCHMITT ET AL.

Examiner

Kenneth A Gross

Art Unit

2122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-50 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 26-50 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claims 29, 34, and 39 objected to because of the following informalities: In regard to Claim 29, the term “and variable that” should be “and variables that”. In regard to Claim 34, the term “generated in motion control flowchart” should be “generated in the motion control flowchart”. Furthermore, the term “subprograms of the textual language the graphical elements” should be “subprograms of the textual language [the] into graphical elements” or something similar. In regard to Claim 39, the term “a parallel branch is initiated an wherein” should be “a parallel branch is initiated and wherein”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 27-31, 33, 36, 37, 40-44, 47-49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 27, at line 3, recites the limitation "the run time system". There is insufficient antecedent basis for this limitation in the claim. Claim 31, at line 5, recites the limitation "the controller". There is insufficient antecedent basis for this limitation in the claim. Claim 33, at line 3, recites the limitation "the industrial controller". There is insufficient antecedent basis for this limitation in the claim. Claim 36, at line 2, recites the limitation "the structured textual language". There is insufficient antecedent basis for this

Art Unit: 2122

limitation in the claim. Claim 40, at lines 1-2, recites the limitation "function blocks". There is insufficient antecedent basis for this limitation in the claim. Claims 41-43 recite the limitation "the motion control flowchart view". There is insufficient antecedent basis for this limitation in the claim. Claim 43, at lines 1-2, recites the limitation "the function blocks for the allocation of variables". There is insufficient antecedent basis for this limitation in the claim. Claim 44, at lines 2-3, recites the limitation "the flowchart view". There is insufficient antecedent basis for this limitation in the claim. Claim 47, at line 2, recites the limitation "reduced form and on or enlarged form", which is unclear. Does this mean "reduced form **or** enlarged form", "reduced form **and** enlarged form", or "reduced form **and/or** enlarged form". Claim 49, at line 1 and 2, recites the limitation "steps a) through c) are triggered in a collective step", which is unclear. What is meant by "collective step"? Does this mean that the steps are done together, without other steps occurring between these steps? Does this mean that the steps are done automatically, without user intervention? Since the steps are listed together as the first three steps of a method, it is assumed that the steps operate collectively within the method, in that each step is carried out while the method is being executed. Claims 28-30, 37, and 48 are rejected for being dependent on a previously rejected parent claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 26-28, 32, 38, 41, 43, and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by Leask et al. (U.S. Patent Number 6,412,106).

In regard to Claim 26, Leask teaches a method of debugging programs represented by a flowchart visualized on a display including: (a) preparing a debugging process based on the flowchart (Column 7, lines 8-20); (b) assigning suspend command to each graphic element (Column 7, lines 29-33); (c) commencing the debug process (Figure 9, item 902); (d) continuing the debugging process until a suspend command is reached (Figure 9, items 908 and 904, and associated text); (e) displaying the location of the flowchart element corresponding to the suspending command (Column 16, lines 25-29); (f) proceeding to the next possible suspend command (Figure 9, items 908 and 904, and associated text); (g) continuing steps (d) through (f) until the user reaches the end of the flowchart (Figure 9, item 904).

In regard to Claim 27, Leask teach that a task corresponding to a graphic element that has been stopped by a suspend command is continued with a task control mechanism (Figure 5, item 412, and associated text).

In regard to Claim 28, Leask teach that a user operates a resume command by the task control mechanism, thereby advancing the current suspend command (Figure 5, item 412, and associated text).

In regard to Claim 32, Leask teaches a debugging interface available to a user at the structured textual language level (Column 5, lines 51-57).

In regard to Claim 38, Leask teaches that a loop programming language command is in the flowchart view (Figure 3, item 34, and associated text).

In regard to Claim 41, Leask teaches that function blocks are combined into modules that are in turn presented as function blocks in the motion control flowchart view (Column 1160-67 and Column 12, lines 1-5).

In regard to Claim 43, Leask teaches that function blocks comprise underlying source code statements (Column 11, lines 60-63). The examiner takes official notice that a functional block that corresponds to variable allocation has underlying source code statements that allocate variables. Further, these must be multiple statements for multiple variables, since one statement is needed for each variable allocated.

In regard to Claim 50, Leask teaches that during the processing of the flowchart, a currently processed graphical element is displayed (Column 16, lines 25-29).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 29-31, 36, 37, 45, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leask et al. (U.S. Patent Number 6,412,106) in view of "ISaGRAF Overview" by AlterSys Inc., March 2001.

In regard to Claim 29, Leask teaches the method of Claim 27, but does not teach that the task control mechanism of the run time system comprises breakpoint debugging where variables can be pre-assigned by the user in the engineering system, further comprising the step of pre-

Art Unit: 2122

assigning variables corresponding to breakpoints. The AlterSys reference however provides a debugger that can force the status of variables (Page 11, lines 34-35). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 27, as taught by Leask, where the task control mechanism of the run time system comprises breakpoint debugging where variables can be pre-assigned by the user in the engineering system, further comprising the step of pre-assigning variables corresponding to breakpoints, as taught by the AlterSys reference, since this allows simulation of a program functionality during debug.

In regard to Claim 30, the AlterSys reference teaches that debugging is done by means of debugging tools, and not the task control mechanism (Page 11, line 25).

In regard to Claim 31, Leask teaches the method of Claim 26, but does not teach generating a structured textual language from the flowchart, converting the language into processor-independent pseudo code, loading the code into the controller, and converting the code in executable processor code. The AlterSys reference, however, does teach using a Structured Text language to generate ST code from the flowchart (Page 6, lines 6-12), converting the language into a target independent code (Page 13, line 15), loading the code into the controller and converting the code in executable processor code (Page 13, lines 17). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 26, as taught by Leask, where the method further includes generating a structured textual language from the flowchart, converting the language into processor-independent pseudo code, loading the code into the controller, and converting the code in

executable processor code, as taught by the AlterSys reference, since this allows both functional programming of complex flowchart operations and virtual machine-like portability.

In regard to Claim 36, Leask teaches the method of Claim 26, but does not teach that structured text according to IEC 6-1131 is used as the structured textual language. The AlterSys reference, however, does teach using the IEC 6-1131 language as the structured textual language in flowchart programming (Page 4, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 26, where structured text according to IEC 6-1131 is used as the structured textual language, as taught by the AlterSys reference, since this is a standard in flowchart programming.

In regard to Claim 37, the AlterSys reference teaches that a user can switch between structured textual language, contact plan, and function plan as forms of representation for formulation conditions (Page 4, Figure 1).

In regard to Claim 45, Leask teaches the method of Claim 26, but does not teach that the graphical elements of the flowchart are positioned automatically. The AlterSys reference does teach this feature however (Page 4, lines 11-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 26, as taught by Leask, where the graphical elements of the flowchart are positioned automatically, as taught by AlterSys, since this allows for a neater display of the flowchart.

In regard to Claim 47, Leask teaches the method of Claim 26, but does not teach that the flowchart is displayed in a reduced or enlarged form. The AlterSys reference, however, does teach this feature (Page 4, lines 12-13).

8. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leask et al. (U.S. Patent Number 6,412,106) in view of Hastings et al. (U.S. Patent Number 5,563,526).

In regard to Claim 33, Leask teaches the method of Claim 26, but does not teach that programming language commands are provided in the flowchart editor as a function of configuration of hardware associated with the industrial controller. Hastings, however, does teach using commands to edit a configuration of hardware (Column 30, lines 47-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 26, as taught by Leask, where programming language commands are provided in the flowchart editor as a function of configuration of hardware associated with the industrial controller, as taught by Hastings, since this allows user-defined hardware configurations for performing custom functions.

9. Claims 34, 35, 46, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leask et al. (U.S. Patent Number 6,412,106) in view of "Siemens Industrial Software" by E&M Products, April 2001.

In regard to Claim 34, Leask teaches the method of Claim 26, but does not teach that additional graphical elements are generated in the flowchart by converting user-defined structured text subprograms of the textual language into graphical elements comprising function interfaces of the corresponding structured text subprograms. The E&M Products reference, however, does teach generating flowcharts automatically using a structured text language (Page 6, lines 6-13). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 26, as taught by Leask, where additional graphical elements are generated in the flowchart by converting subprograms of the textual

Art Unit: 2122

language into graphical elements comprising function interfaces, as taught by the E&M Products reference, since this allows functional programming of complex flowchart operations.

In regard to Claim 35, Leask teaches that the graphical elements are used a language elements of the flowchart, in that each element can correspond to an element of a programming language (Figure 3, items 32-38).

In regard to Claim 46, Leask teaches the method of Claim 26, but does not teach that graphical elements are linked automatically. The E&M Products reference, however, does teach automatically generating a flowchart based on a structured text language, where the flowchart obviously contains pre-linked elements (Page 6, lines 6-13). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 26, as taught by Leask, where graphical elements are linked automatically, as taught by the E&M Products reference, since this allows for functional programming of complex flowchart interactions.

In regard to Claim 48, Leask teaches the method of Claim 31, but does not teach re-translation back into motion control flowchart representation by means of marks in the textual language. The E&M Products reference, however, does teach translation from a structured language into a flowchart representation (Page 6, lines 6-13). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 31, where the method further includes teach re-translation back into motion control flowchart representation by means of marks in the textual language, as taught by E&M Products, since this allows for functional programming of complex flowchart operations to be displayed for better user understanding of the operation.

10. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leask et al. (U.S. Patent Number 6,412,106) in view of Sara (U.S. Patent Number 4,837,722).

In regard to Claim 39, Leask teaches the method of Claim 39, but does not teach that a parallel branch wherein individual commands are initiated in a given interpolator cycle within a respective parallel branch. Sara, however, does teach performing operations in parallel within an interpolator cycle (Column 2, lines 45-53). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 39, where the method further includes a parallel branch wherein individual commands are initiated in a given interpolator cycle within a respective parallel branch, as taught by Sara, since this allows for faster execution of similar instructions.

11. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leask et al. (U.S. Patent Number 6,412,106) in view of Messerges et al. (U.S. Patent Number 6,295,606).

In regard to Claim 40, Leask teaches the method of Claim 26, but does not teach that parameters can be set for function blocks by mask input in the flowchart view. Messerges, however, does teach using mask input for function input parameters (Column 2, lines 64-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 26, as taught by Leask, where parameters can be set for function blocks by mask input in the flowchart view, as taught by Messerges, since this aids cryptographic functions to produce more secure output.

12. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leask et al. (U.S. Patent Number 6,412,106) in view of "PLCopen: Standardization in Industrial Control Programming" by Eelco van der Wal, October 1999 (hereinafter Van der Wal).

In regard to Claim 42, Leask teaches the method of Claim 41, but does not teach that function blocks are interleaved in the motion control flowchart view. Van der Wal, however, does teach interleaving function blocks (Page 33). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 41, as taught by Leask, where function blocks are interleaved in the motion control flowchart view, as taught by Van der Wal, since this allows for parallel or conditional functional blocks to exist in the flowchart.

13. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leask et al. (U.S. Patent Number 6,412,106) in view of Marquardt et al. (U.S. Patent Number 4,682,278).

In regard to Claim 44, Leask teaches the method of Claim 41, but does not teach that function blocks representing functions that require a given period of time comprise advance conditions in the flowchart view. Marquardt, however, does teach a time function that requires a preset time to be entered in advance (Column 14, lines 40-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 41, as taught by Leask, where function blocks representing functions that require a given period of time comprise advance conditions in the flowchart view, as taught by Marquardt, since this allows for functions to operate for a given amount of time, or after a certain amount of time.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A Gross whose telephone number is (703) 305-0542. The examiner can normally be reached on Mon-Fri 7:30-5.

Art Unit: 2122

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

KAG

A handwritten signature in black ink, reading "Anthony Nguyen-Ba". The signature is fluid and cursive, with a long horizontal stroke at the end.

**ANTHONY NGUYEN-BA
PRIMARY EXAMINER**